

Application No.: 09/901,018

Docket No.: R2184.0105/P105

AMENDMENTS TO CLAIMS

1. (currently amended) A document management apparatus which manages a group of documents stored in a document storage device, the document management apparatus comprising:

a first unit generating an operational history record of one of the stored documents of the group every time an operation on said one of the stored documents is performed by a document operation device;

a second unit storing the operational history records generated by the first unit; and

a third unit determining whether a selected item of the operational history record, stored for a currently processed document among the stored documents, matches with a corresponding item of each of the operational history records, stored for the remaining ones of the stored documents other than the currently processed document, so that the third unit extracts a list of related documents, which are related to the currently processed document, from the remaining ones of the stored documents of the group, based on results of the matching, and

wherein the third unit performs the matching between the currently processed document and the remaining ones of the stored documents of the group with respect to at least one item of each operational history record, and

wherein the third unit comprises a document relation estimating unit calculating an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents of the group by a length of operation time period for which a value of an operation time period item of the operational history record of the currently processed document overlaps with a value of a corresponding operation time period item of each of the operational history records of the remaining documents, so that the third unit extracts the list of related documents

Application No.: 09/901,018

Docket No.: R2184.0105/P105

based on the estimated degrees of relation calculated for the remaining ones of the stored documents.

2. (canceled)

3. (currently amended) The document management apparatus of claim [[2]]
1, wherein said at least one item of each operational history record is selectable from among items contained in each operational history record.

4. (currently amended) The document management apparatus of claim [[2]]
1, wherein said at least one item of each operational history record is selected by the document operation device from among items contained in each operational history record.

5. (currently amended) The document management apparatus of claim [[2]]
1, wherein each operational history record contains an item of date and time of operation for one of the stored documents of the group.

6. (currently amended) The document management apparatus of claim [[2]]
1, wherein each operational history record contains an item of operator name for one of the stored documents of the group.

7. (currently amended) The document management apparatus of claim [[2]]
1, wherein each operational history record contains an item of operation type for one of the stored documents of the group.

8. (canceled)

Application No.: 09/901,018

Docket No.: R2184.0105/P105

9. (currently amended) The document management apparatus of claim [[8]] 1, wherein each operational history record contains an item of time period of operation for one of the stored documents of the group, and wherein the document relation estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents by using the item of the operation time period of the currently processed document when said item is selected.

10. (currently amended) The document management apparatus of claim [[8]] 1, wherein each operational history record contains an item of the number of reference accesses for one of the stored documents of the group, and wherein the document relation estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents by using the item of the reference access number of the currently processed document when said item is selected.

11. (currently amended) The document management apparatus of claim [[8]] 1, wherein each operational history record contains an item of amount of copied data for one of the stored documents of the group, and wherein the document relation estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents by using the item of the copied data amount of the currently processed document when said item is selected.

12. (currently amended) The document management apparatus of claim [[8]] 1, wherein each of the stored documents of the group contains a related document indication list, the related document indication list indicating a list of storage locations

Application No.: 09/901,018

Docket No.: R2184.0105/P105

of related documents that are subjected to either copying operations to the document or reference accesses from the document, and wherein the document relation estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents by using the related document indication list of the currently processed document.

13. (original) The document management apparatus of claim 1, wherein the third unit transmits the list of related documents to the document operation device, so that the document operation device outputs the list of related document in a recognizable form.

14. (original) The document management apparatus of claim 1, wherein the third unit stores a correlation between the list of related documents and an identifier of the operator who has processed the current document, together with the list of related documents, and, when the operator starts processing a new document, the third unit reads the list of related documents in response to the operator identifier by using the correlation between the list of related documents and the operator identifier.

15. (original) The document management apparatus of claim 13, further comprising a document transmission unit transmitting, when a request of outputting a related document contained in the list of related documents is received from the document operation device, data of said related document from the document storage device to the document operation device.

16. (original) The document management apparatus of claim 1, wherein the document management apparatus is connected to the document storage device via a network.

Application No.: 09/901,018

Docket No.: R2184.0105/P105

17. (original) The document management apparatus of claim 1, wherein the document management apparatus is connected to the document operation device via a network.

18. (currently amended) A related document extracting method for use in a document management apparatus which manages a group of documents stored in a document storage device, comprising the steps of:

generating an operational history record of one of the stored documents of the group every time an operation on said one of the stored documents is performed by a document operation device;

storing the operational history records generated in said generating step;

determining whether a selected item of the operational history record, stored for a currently processed document among the stored documents of the group, matches with a corresponding item of each of the operational history records, stored for the remaining ones of the stored documents other than the currently processed document; and

extracting a list of related documents, which are related to the currently processed document, from the remaining ones of the stored documents of the group, based on results of the matching in the determining step, and

wherein the matching between the currently processed document and the remaining ones of the stored documents of the group is performed with respect to at least one item of each operational history record, and

wherein the document management apparatus comprises a document relation estimating unit, and wherein the estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents of the group by a length of operation time period for which a value of an operation time period item of the operational history record of the currently

Application No.: 09/901,018

Docket No.: R2184.0105/P105

processed document overlaps with a value of a corresponding operation time period item of each of the operational history records of the remaining documents, so that the list of related documents is extracted based on the estimated degrees of relation calculated for the remaining ones of the stored documents.

19. (canceled)

20. (currently amended) The related document extracting method of claim [[19]] 18, wherein said at least one item of each operational history record is selected by an operator who processes the current document on the document operation device, from among items contained in each operational history record.

21. (currently amended) The related document extracting method of claim [[19]] 18, wherein each operational history record contains an item of date and time of operation for one of the stored documents of the group.

22. (currently amended) The related document extracting method of claim [[19]] 18, wherein each operational history record contains an item of operator name for one of the stored documents of the group.

23. (currently amended) The related document extracting method of claim [[19]] 18, wherein each operational history record contains an item of operation type for one of the stored documents of the group.

24. (canceled)

Application No.: 09/901,018

Docket No.: R2184.0105/P105

25. (currently amended) The related document extracting method of claim [[24]] 18, wherein each operational history record contains an item of time period of operation for one of the stored documents of the group, and wherein, in the determining step, an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents is calculated by using the item of the operation time period of the currently processed document when the item of the operation time period is selected.

26. (currently amended) The related document extracting method of claim [[24]] 18, wherein each operational history record contains an item of the number of reference accesses for one of the stored documents of the group, and wherein, in the determining step, an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents is calculated by using the item of the reference access number of the currently processed document when the item of the reference access number is selected.

27. (currently amended) The related document extracting method of claim [[24]] 18, wherein each operational history record contains an item of the amount of copied data for one of the stored documents of the group, and wherein, in the determining step, an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents is calculated by using the item of the copied data amount of the currently processed document when the item of the copied data amount is selected.

28. (currently amended) The related document extracting method of claim [[24]] 18, wherein each of the stored documents of the group contains a related document indication list, the related document indication list indicating a list of storage

Application No.: 09/901,018

Docket No.: R2184.0105/P105

locations of related documents that are subjected to either copying operations to the document or reference accesses from the document, and wherein, in the determining step, an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents is calculated by using the related document indication list of the currently processed document.

29. (currently amended) A document processing assist method for use in a document management apparatus which manages a group of documents stored in a document storage device, comprising the steps of:

generating an operational history record of one of the stored documents of the group every time an operation on said one of the stored documents is performed by a document operation device;

storing the operational history records generated in said generating step;

determining whether a selected item of the operational history record, stored for a currently processed document among the stored documents of the group, matches with a corresponding item of each of the operational history records, stored for the remaining ones of the stored documents other than the currently processed document;

extracting a list of related documents, which are related to the currently processed document, from the remaining ones of the stored documents of the group, based on results of the matching in the determining step; and

transmitting the list of related documents from the document management apparatus to an output unit of the document operation device so that the output unit provides the list of related documents, received from the document management apparatus, to an operator who processes the current document on the document operation device, and

Application No.: 09/901,018

Docket No.: R2184.0105/P105

wherein the matching between the currently processed document and the remaining ones of the stored documents of the group is performed with respect to at least one item of each operational history record, and

wherein the document management apparatus comprises a document relation estimating unit, and wherein the estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents of the group by a length of operation time period for which a value of an operation time period item of the operational history record of the currently processed document overlaps with a value of a corresponding operation time period item of each of the operational history records of the remaining documents, so that the list of related documents is extracted based on the estimated degrees of relation calculated for the remaining ones of the stored documents.

30. (original) The document processing assist method of claim 29, further comprising the step of storing a correlation between the received list of related documents and the operator of the current document on the document operation device, wherein, when the operator processes the current document on the document operation device, the output unit provides the list of related documents to the operator in accordance with the store correlation.

31. (original) The document processing assist method of claim 29, further comprising the step of transmitting, when the operator selects one of the related documents from the list, data of the selected related document from the document management apparatus to the output unit of the document operation device so that the output unit provides the data of the selected related document, received from the document management apparatus, to the operator.

Application No.: 09/901,018

Docket No.: R2184.0105/P105

32. (currently amended) A computer program causing a processor to execute a related document extracting process on a document management apparatus which manages a group of documents stored in a document storage device, comprising:

first program code means causing the processor to generate respective operational history records of the stored documents of the group in response to an operation performed on each document by a document operation device;

second program code means causing the processor to store the operational history records generated by the first program code means;

third program code means causing the processor to determine whether a selected item of the operational history record, stored for a currently processed document among the stored documents of the group, matches with a corresponding item of each of the operational history records, stored for the remaining ones of the stored documents other than the currently processed document; and

fourth program code means causing the processor to extract a list of related documents, which are related to the currently processed document, from the remaining ones of the stored documents of the group, based on results of the matching by the third program code means, and

wherein the matching between the currently processed document and the remaining ones of the stored documents of the group is performed with respect to at least one item of each operational history record, and

wherein the document management apparatus comprises a document relation estimating unit, and wherein the estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones of the stored documents of the group by a length of operation time period for which a value of an operation time period item of the operational history record of the currently processed document overlaps with a value of a corresponding operation time period item of each of the operational history records of the remaining documents, so that the

Application No.: 09/901,018

Docket No.: R2184.0105/P105

list of related documents is extracted based on the estimated degrees of relation calculated for the remaining ones of the stored documents.

33. (currently amended) A computer-readable recording medium storing program code instructions causing a processor to execute a related document extracting process on a document management apparatus which manages a group of documents stored in a document storage device, comprising:

first program code means causing the processor to generate respective operational history records of the stored documents of the group in response to an operation performed on each document by a document operation device;

second program code means causing the processor to store the operational history records generated by the first program code means;

third program code means causing the processor to determine whether a selected item of the operational history record, stored for a currently processed document among the stored documents of the group, matches with a corresponding item of each of the operational history records, stored for the remaining ones of the stored documents other than the currently processed document; and

fourth program code means causing the processor to extract a list of related documents, which are related to the currently processed document, from the remaining ones of the stored documents of the group, based on results of the matching by the third program code means, and

wherein the matching between the currently processed document and the remaining ones of the stored documents of the group is performed with respect to at least one item of each operational history record, and

wherein the document management apparatus comprises a document relation estimating unit, and wherein the estimating unit calculates an estimated degree of relation between the currently processed document and each of the remaining ones

Application No.: 09/901,018

Docket No.: R2184.0105/P105

of the stored documents of the group by a length of operation time period for which a value of an operation time period item of the operational history record of the currently processed document overlaps with a value of a corresponding operation time period item of each of the operational history records of the remaining documents, so that the list of related documents is extracted based on the estimated degrees of relation calculated for the remaining ones of the stored documents.